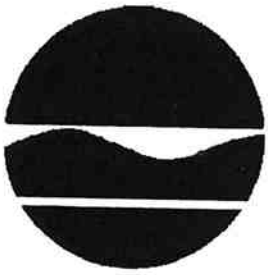
SUPERFUND STANDBY PROGRAM
New York State
Department of Environmental Conservation
50 Wolf Road
Albany, New York 12233-7010

SITE ID 213: GENERAL ELECTRIC COMPANY'S HIAWATHA BOULEVARD FACILITY

and

SITE ID 214: GENERAL ELECTRIC COMPANY'S EAST MOLLOY ROAD FACILITY

SITE SUMMARY REPORT
REVISION 1



Onondaga Lake Project
Task 5: 104(e) Review

Site No. 734030-002
Work Assignment Number D003060-9

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1.0 SITE DESCRIPTION

The General Electric Company Apparatus Service Centers (Company ID 2003, Site IDs 213 and 214) provided repair services for General Electric (GE). Services included repair and rebuilding of industrial motors, generators, switch gear, and other electrical apparatus, as well as conducting general machine shop work.

1.1 Location

Between 1965 and approximately 1976, the Syracuse Apparatus Service Center was located at 1015 Hiawatha Boulevard in Syracuse, New York. In 1976, it was relocated to 5990 East Molloy Road, also in Syracuse, where it was in operation until it closed in December 1993 (GE, Mailing No. 1, p. 000002). The facility at East Molloy Road consisted of 8,600 square feet of shop area and 2,500 square feet of office area and was situated on a 3.6 acre lot (GE, Mailing No. 3, p. 002022). No information was provided by GE regarding the layout of the Hiawatha Boulevard facility. Figure 1 shows the approximate locations of the Hiawatha Boulevard and East Molloy Road sites in relation to Onondaga Lake. The exact location of the Hiawatha Boulevard site is unknown; however, it is believed that the site was near the intersection of Hiawatha Boulevard and Solar Street, which is in the "Oil City" area of Syracuse.

1.2 Geology

The surficial geology of the Syracuse area was strongly influenced by the most recent glacial advance (Wisconsin age, 12,000 to 14,500 years ago). Syracuse occupies a region that was covered by Lake Iroquois, a large glacial lake situated in front of the ice margin. The broad flat-lying plains situated from Syracuse north to Lake Ontario were formed beneath Lake Iroquois and are characterized by lacustrine fine sand and silt deposits. Additional glacial

features which are common to the region are moraines, drumlins, U-shaped valleys and meltwater channels. The last of these features is important in understanding the geology at the site. Onondaga Lake and all its major tributaries lie within glacial meltwater channels. These features originally formed as a conduit to carry meltwater away from the glacier. They typically transmitted large volumes of water at high velocities. Sediment types characteristically found in meltwater channels are sands and gravels. In the Syracuse region, these relict features form important water bearing and transmitting units which lie in an irregularly branching, net-like pattern throughout the area.

The bedrock geology of the greater Syracuse area includes Lower to Middle Paleozoic age sedimentary rocks predominated by carbonate (dolostone and limestone) and shale and containing some sandstone, siltstone and evaporites. Bedrock directly beneath both sites (as well as underneath Onondaga Lake) is the Silurian Vernon Scale (Rickard and Fischer, 1970) which has low permeability, but does possess secondary porosity due to fractures.

1.3 Hydrogeology

No boring logs were provided by GE for the Hiawatha Boulevard or East Molloy Road sites. In the absence of site-specific information, the Hiawatha Boulevard site is expected to be underlain by either glacio-lacustrine sediment and glacial till or outwash sand and gravel deposits associated with glacial meltwater channels. The presence of fill material at the Hiawatha Boulevard site is unknown, although the presence of fill (usually sand/gravel mixture with varying amounts of silt, brick, cinder, wood, and plastic) and Solvay wastes has been documented in the Oil City area (UFI, 1994). The generally fine-grained nature of glacio-lacustrine sediment and glacial till suggests a low hydraulic conductivity while the sand and gravel deposits would be expected to possess a higher hydraulic conductivity. The high potential for the presence of fill materials in this industrialized area ("Oil City") adds another layer of complexity; the conductivity in these materials can be highly variable and their degree

of interconnection is often poorly constrained. No aquifer testing data, necessary to quantify the transmissivity values, was provided by GE.

It is expected that glacio-lacustrine sediment and glacial till underlie the East Molloy Road site. The presence of fill material at this site is unknown. As noted above, the generally fine-grained nature of glacio-lacustrine sediment and glacial till suggests a low hydraulic conductivity. However, GE did not provide aquifer testing data necessary to quantify the transmissivity values.

No groundwater level measurements were provided for the Hiawatha Boulevard and East Molloy Road sites. However, it is expected that, at the East Molloy Road site, the groundwater flows towards Onondaga Lake (in a southeasterly direction) via the north branch of Ley Creek. It is anticipated that the groundwater at the Hiawatha Boulevard site flows in a northwesterly direction towards Onondaga Lake.

1.4 Surface Water Hydrology

The exact location of the Hiawatha Boulevard site is unknown, although the best available information suggests that the site was near the intersection of Hiawatha Boulevard and Solar Street, about four-tenths of a mile southeast of Onondaga Lake, about 900 feet northeast of the Barge Canal, and at an approximate elevation of 385 feet NGVD. Based on the topography near the location of the Hiawatha Boulevard facility as determined from the USGS Syracuse West Quadrangle Map (dated 1973, photorevised 1978), it appears that surface water flows in either a southwesterly direction towards the Barge Canal or in a northwesterly direction towards Onondaga Lake. The elevation of the lake near the site is approximately 363 feet.

The East Molloy Road site is located approximately 250 feet northwest of the north branch of Ley Creek at an elevation of 390 feet NGVD. Based on the topography of the East Molloy

Road site as determined from the USGS Syracuse East Quadrangle Map (dated 1957, photorevised 1978), it appears that surface water flows in a southeasterly direction towards the north branch of Ley Creek, which is at an elevation of approximately 380 feet NGVD in the immediate vicinity of the site. The north branch of Ley Creek discharges into Ley Creek approximately 4,000 feet southwest of the site; Ley Creek discharges into the upstream end of Onondaga Lake approximately 20,000 feet downstream of the confluence.

2.0 SITE HISTORY

2.1 Owners/Operators

As noted previously, the Syracuse Apparatus Service Center was located at 1015 Hiawatha Boulevard from 1965 to 1976. According to GE, the Hiawatha Boulevard property was leased (GE, Mailing No. 3, p. 001876). However, GE did not provide any information regarding the owners of this site or the use of the site prior to or after occupation by GE. From 1976 to 1993, the Syracuse Apparatus Service Center was located at 5990 East Molloy Road. This property was leased by GE from Mid Court Builders Corporation, located in 1981 at 116 Ballantyne Road in Syracuse, New York (GE, Mailing No. 3, p. 001907). (The owner's address may have changed to 96 East Lake Road, Skaneateles, NY 13152 as of 1993 [GE, Mailing No. 3, p. 002434].) No information was provided regarding prior use of the site or use of the site after cessation of the Apparatus Service Center operations in December 1993.

2.2 Site Operations

The Syracuse Apparatus Service Center repaired industrial motors, generators, switchgear, and other electrical apparatus. It also conducted general machine shop work. Operations included disassembly of equipment, cleaning of parts (using steam, solvents, or grit blasting methods), replacement of parts, machining of parts, reassembly of equipment, painting of equipment, and testing of equipment. Based on the 1993 Industrial Chemical Survey for the East Molloy Road facility, GE estimated that, on an annual basis, the facility used approximately 3,000 pounds of copper, 1,500 pounds of steel, 150 pounds of varnish, 500 gallons of paint, 200 pounds of welding material, and 500 yards of flexible insulation (GE, Mailing No. 3, pp. 002059 - 002066). In addition, GE estimated that approximately 1 to 3 gallons of 1,1,1-trichloroethane (degreasing agent), 5 gallons of toluene (varnish thinner), and 30 ounces of epoxides (repair kits) were used on an annual basis.

According to GE, the primary wastes generated at the East Molloy facility included scrap metal, wastewater, spent solvents, and grit blast materials (GE, Mailing No. 1, p. 000003). In 1980, the East Molloy Road facility applied for a USEPA Part A Permit for operation as a treatment, storage, or disposal (TSD) facility for hazardous waste (EPA ID Number NY D010763290; GE, Mailing No. 3, pp. 001902 - 001908). GE wrote to USEPA in December 1981 to request withdrawal of this application, although confirmation of this withdrawal was not recorded by USEPA or NYSDEC (GE, Mailing No. 3, pp. 001913 - 001914). When operations ceased in December 1993, the facility had no state or federal hazardous waste permits.

GE did not provide information on the annual usage of materials or the wastes generated by the Hiawatha Boulevard facility. However, it is likely that the types of materials used and the wastes generated at the Hiawatha Boulevard facility were similar to those reported for the East Molloy Road facility.

2.3 Generation and Disposal of Wastes

A description of the wastes generated at the East Molloy Road site as well as the reported disposal practices for these wastes is presented below. No information was provided by GE regarding the nature of and disposal practices for wastes generated at the Hiawatha Boulevard site.

Scrap Metal

Scrap metal was generated as part of the disassembly of equipment and machining or replacement of parts. The scrap was periodically transported by truck to scrap dealers (GE, Mailing No. 1, p. 000004). GE did not identify the scrap dealers who purchased the scrap metal nor did GE provide an estimate of the volume of scrap generated.

Wastewater

Wastewater was generated during the steam cleaning of equipment and electrical apparatus. Wastewater may have contained limited amounts of oil and grease, metals, and miscellaneous material found on the parts (GE, Mailing No. 1, p. 000003). Based on the Industrial Wastewater Discharge Permit Application submitted by GE to the Onondaga County Department of Drainage and Sanitation (OCDDS) for the East Molloy Road facility, wastewater was generated on an intermittent basis; an average daily flow of approximately 1,000 gallons was discharged on days when wastewater was generated (GE, Mailing No. 1, pp. 000335 - 000368). According to GE, wastewater was pretreated with an oil/water separator prior to discharge to the Onondaga County public sewer system for subsequent treatment at the municipal wastewater treatment plant. In February 1993, in-line filtration and carbon adsorption were added as pretreatment processes in an attempt to meet the discharge criteria established by the OCDDS (GE, Mailing No. 3, p. 002002). In April 1993, the East Molloy Road facility discontinued discharge of industrial wastewater to the Onondaga County sewer system; wastewater was stored in on-site tanks to allow for analytical testing and additional treatment, as necessary, prior to disposal (GE, Mailing No. 3, p. 002014).

GE did not identify the wastewater treatment plant receiving wastewater from the East Molloy Road facility. As discussed in Section 3.5, it is likely that, prior to 1980, the wastewater was treated at the Ley Creek Sewage Treatment Plant, diverted to the Metropolitan Syracuse (METRO) Wastewater Treatment Plant, and discharged to Onondaga Lake. The Ley Creek Sewage Treatment Plant was shut down in 1980; post-1980 wastewater was likely treated at the METRO Wastewater Treatment Plant prior to discharge to Onondaga Lake.

Wastewater Pretreatment Sludge

Sludge was generated by on-site pretreatment of wastewater with an oil/water separator. This sludge was pumped out periodically and transported by truck to disposal facilities (GE, Mailing No. 1, p. 000006). GE did not provide an estimate of the volume of the sludge generated. Based on analytical results provided by GE, some, if not all, of the sludge was classified as hazardous and disposed of as hazardous waste as discussed below.

Grit Blast Wastes

Grit blast materials containing metals and other materials cleaned off parts were generated during the cleaning of parts. GE did not provide an estimate of the volume of grit blast wastes generated nor did GE identify the disposal locations for the grit blast waste. In addition, GE did not indicate whether or not this waste was classified as hazardous.

Hazardous Wastes

GE provided copies of hazardous waste manifests for the disposal of hazardous wastes between 1985 and 1994. During this time period, wastes disposed included waste petroleum naphtha (USEPA hazardous waste code D001), halogenated spent solvents and degreasers (USEPA hazardous waste codes F001 and F002), non-halogenated spent solvents (USEPA hazardous waste code F005), spirit varnish (USEPA hazardous waste code D001), mineral spirits with tetrachloroethene (USEPA hazardous waste codes D001 and D039), waste aerosols (USEPA hazardous waste code D001), lead-contaminated solids and liquids (USEPA hazardous waste code D008), cadmium-contaminated solids (USEPA hazardous waste code D006), asbestos (Massachusetts DEP hazardous waste code MA99), transformers with PCB-contaminated oil (NYSDEC hazardous waste code B006), PCB-contaminated oil (NYSDEC hazardous waste code B002), PCB-contaminated solids (NYSDEC hazardous waste code

B007), various unspecified flammable liquids (USEPA hazardous waste code D001), and unspecified corrosive cleaning compounds (USEPA hazardous waste code D002). Although the specific sources of these hazardous wastes were not identified, these wastes may include some components of the wastes discussed above (*e.g.,* wastewater pretreatment sludge and grit blast wastes).

Based on the hazardous waste manifests, only waste petroleum naphtha (USEPA hazardous waste code D001) was transported to a facility within the Onondaga Lake Basin for subsequent transport and/or disposal. This waste was transported to the Safety-Kleen Corporation facility in Syracuse, New York which, as reported in Completeness Review A, Safety-Kleen Corporation (TAMS, July 28, 1995), is a storage and transfer facility for automotive and industrial wastes. Transport of waste petroleum naphtha to this Syracuse location began in 1988. Prior to 1988, waste petroleum naphtha was transported to the Safety-Kleen Corporation facility in Mattydale, New York. Safety-Kleen Corporation reported no treatment or disposal of wastes at these facilities. GE did not provide information regarding the ultimate disposal of this waste.

3.0 POTENTIAL PATHWAYS FOR RELEASE OF HAZARDOUS SUBSTANCES TO THE LAKE SYSTEM

3.1 Soil

Because the Hiawatha Boulevard facility is believed to have been located about 900 feet from the barge canal and about four-tenths of a mile from the southeastern shoreline of Onondaga Lake, there is a potential for direct or indirect migration of contaminants via overland transport of contaminated soil to Onondaga Lake. However, GE did not provide any information regarding contamination at the Hiawatha Boulevard site. Therefore, the potential significance of this soil pathway for migration of contaminants from the Hiawatha Boulevard site to the Onondaga Lake system is unknown.

The East Molloy Road facility is approximately 250 feet northwest of the north branch of Ley Creek. Therefore, there is a potential for migration of contaminants to the Onondaga Lake system due to the overland transport of contaminated soil from the site to the north branch of Ley Creek. In 1992, two soil samples were collected after removal of a 1,000-gallon leaking underground storage tank, used to store materials recovered from an on-site oil/water separator, from the East Molloy Road site. These samples were analyzed for volatile organics, PCBs, and total petroleum hydrocarbons (TPHC). Low levels of 1,1,1-trichloroethane (2 ppb) were detected in only one of the soil samples; neither PCBs nor TPHC were detected (GE, Mailing No. 3, pp. 002994 - 003001). Based on the results of this very limited soil sampling effort, the relatively small quantities of hazardous substances reportedly used by the facility, and the lack of any other documented information indicating soil contamination at the site, the potential for release of hazardous substances to the Onondaga Lake system by the soil pathway is not likely to be significant for the East Molloy Road site.

3.2 Surface Water

As noted in Section 3.5, it is likely that all wastewater generated from the Hiawatha Boulevard and East Molloy Road facilities was discharged to the Onondaga County sanitary sewer system for subsequent treatment at either the METRO Wastewater Treatment Plant or the Ley Creek Sewage Treatment Plant. Neither the Hiawatha Boulevard facility nor the East Molloy Road facility were reported to have discharged wastes directly into surface water bodies (Onondaga Lake or the north branch of Ley Creek). Any contaminant migration via surface water would have been indirect (*e.g.*, from migration of contaminated soil or groundwater) as discussed in Sections 3.1 and 3.3.

3.3 Groundwater

GE did not provide any information regarding contamination at the Hiawatha Boulevard site. Therefore, the potential significance of a groundwater pathway for contaminant migration from the Hiawatha Boulevard site to the Onondaga Lake system is unknown.

As noted in Section 3.1, a 1,000-gallon leaking underground storage tank was removed from the East Molloy Road site in 1992. One groundwater sample was collected from the tank excavation and analyzed for volatile organics. Low concentrations of 1,1,1-trichloroethane (5 ppb), 1,1-dichloroethane (3 ppb), and xylenes (3 ppb) were detected (GE, Mailing No. 3, pp. 002994 - 003001). These data suggest that the leaking underground storage tank was not likely to have been a significant source of contamination to the groundwater. No other information regarding groundwater contamination at the East Molloy Road site was provided by GE. Based on this very limited groundwater sampling effort and the lack of any other information suggesting spills or leaks of contaminants at the site, migration of contaminated groundwater is not considered to be a significant pathway for migration of contaminants from the East Molloy Road site to the Onondaga Lake system.

3.4 Air

The East Molloy Road facility obtained four permits for the operation of an air contamination source. Emission points were designated as Nos. 2 through 5 and consisted of an oven for baking of insulation varnish (emission point No. 2); a burnout oven with afterburner for reclaiming electric motor stators (No. 3); an insulation burnoff oven for burning insulation from armatures and stators (No. 4); and a paint spray booth (No. 5) (GE, Mailing No. 3, pp. 001921 - 001925). Regulated contaminants included iron, toluene, aliphatic alcohols, xylene, and particulates. Of these contaminants, only iron and particulates have any significant potential for atmospheric deposition into the Onondaga Lake system. Based on the permitted discharge limits, the migration of contaminants from the East Molloy Road site to the Onondaga Lake system via an air pathway is not expected to be significant. Further, assuming operations at the Hiawatha Boulevard facility were similar to those at the East Molloy Road facility, migration of contaminants from the Hiawatha Boulevard site to the Onondaga Lake system via an air pathway is not expected to have been significant.

3.5 County Sewer System

Onondaga County completed construction of the METRO Wastewater Treatment Plant, a primary treatment plant on the southeastern shore of Onondaga Lake, in 1960. This wastewater treatment plant, which discharges treated effluent directly to Onondaga Lake, was upgraded to secondary treatment (activated sludge) in 1979 and tertiary treatment (phosphorous removal) in 1981 (UFI, 1994). Wastewater discharged from the Hiawatha Boulevard facility to the Onondaga County sewer system was likely treated at this facility and, therefore, this discharge represents a potential pathway for transport of contaminants from the Hiawatha Boulevard facility to the Onondaga Lake system. However, GE did not provide any information regarding the nature of discharges from the Hiawatha Boulevard facility to the

sewer system and, therefore, the potential impact of discharges from this facility on the Onondaga Lake system is unknown.

The Ley Creek Sewage Treatment Plant, a secondary treatment plant, was constructed in 1934. This treatment plant discharged treated effluent to Ley Creek. In the early 1970s, effluent from the hydraulically overloaded Ley Creek Sewage Treatment Plant was apparently diverted to the METRO Wastewater Treatment Plant for additional treatment (UFI, 1994). In 1980, the Ley Creek Sewage Treatment Plant was shut down and wastewater was diverted to the METRO Wastewater Treatment Plant for treatment. When the Syracuse Apparatus Service Center moved to East Molloy Road, the Ley Creek Sewage Treatment Plant was still in operation. It is therefore likely that wastewater discharged to the Onondaga County sewer system from the East Molloy Road facility was treated at both the Ley Creek Sewage Treatment Plant and the METRO Wastewater Treatment Plant prior to discharge to Onondaga Lake. As indicated in the March 1993 weekly effluent sampling results, effluent from the East Molloy Road facility contained PCBs as well as elevated pH levels (GE, Mailing No. 3, pp. 001989 - 001990). Therefore, this discharge represents a potential pathway for transport of contaminants from the East Molloy Road site to Onondaga Lake.

4.0 LIKELIHOOD OF RELEASE OF HAZARDOUS SUBSTANCES TO THE LAKE SYSTEM

4.1 Documented Releases

Historical Releases

According to GE, "GE has no information or knowledge sufficient to form a belief as to whether GE ever released any hazardous substances, hazardous wastes or industrial wastes into the environment at either [Hiawatha Boulevard or East Molloy Road] facility" (GE, Mailing No. 1, p. 000004). Hazardous wastes were transported by truck to permitted disposal facilities after the effective data of RCRA (1980). GE provided hazardous waste manifests for the disposal of hazardous wastes generated at the East Molloy Road facility for the period 1985 through 1994. According to GE, disposal records do not exist for periods prior to 1980 and disposal records for the 1980 to 1984 time period could not be located (GE, Mailing No. 3, pp. 001873 - 001874).

As noted in Sections 3.1 and 3.3, an underground storage tank was removed from the East Molloy Road site in October 1992. Upon removal, this tank was observed to have pin holes and to be leaking (GE, Mailing No. 3, p. 002828). However, based on the results of the very limited soil and groundwater sampling effort associated with the tank removal, it does not appear that the leaking underground storage tank resulted in significant contamination to the site subsurface or groundwater.

As briefly discussed in Section 3.5, weekly monitoring of wastewater from the East Molloy Road facility, conducted in March 1993, revealed the presence of relatively low levels of PCBs (less than 2 ppb) and elevated pH levels (in excess of 9.5 standard units) in the effluent discharged to the Onondaga County sewer system. Because the METRO Wastewater

Treatment Plant discharges to Onondaga Lake, wastewater discharged from the East Molloy Road facility may have contributed to contamination of the Onondaga Lake system.

Ongoing Releases

The Hiawatha Boulevard facility terminated operations in 1976. GE did not provide any information regarding current use of the Hiawatha Boulevard site.

There are no reported ongoing operational releases from the East Molloy Road facility. Discharge of wastewater from this facility to the Onondaga County sewer system was discontinued in April 1993 and the facility terminated operation in December 1993. Contaminated wastewater was removed from the East Molloy Road facility and disposed, and the line connecting on-site wastewater storage tanks with the Onondaga County sewer system was drained (GE, Mailing No. 3, p. 001980). No information was provided by GE regarding the current use of the East Molloy Road site.

4.2 Threat of Release to the Lake System

4.2.1 Extent of Site Contamination

Soil Contamination

GE did not provide any information regarding soil contamination at the Hiawatha Boulevard site.

As discussed in Section 3.1, two soil samples were collected upon removal of a leaking underground storage tank from the East Molloy Road site. These samples were analyzed for volatile organics, PCBs, and TPHC. Low levels of 1,1,1-trichloroethane (2 ppb) were

detected in only one of the soil samples; neither PCBs nor TPHC were detected (GE, Mailing No. 3, pp. 002994 - 003001). Based on the results of this very limited soil sampling effort, the relatively small quantities of hazardous substances reportedly used by the facility, and the lack of any other documented information indicating soil contamination at the site, soil contamination does not appear to be a significant concern at the East Molloy Road site.

Groundwater Contamination

GE did not provide any information regarding groundwater contamination at the Hiawatha Boulevard site.

As discussed in Section 3.3, one groundwater sample was collected upon removal of a leaking underground storage tank from the East Molloy Road site. Low concentrations of 1,1,1-trichloroethane (5 ppb), 1,1-dichloroethane (3 ppb), and xylenes (3 ppb) were detected. These data suggest that the underground storage tank was not likely to have been a significant source of contamination to the groundwater. No other information regarding groundwater contamination at the East Molloy Road site was provided by GE. Based on this very limited groundwater sampling effort and the lack of any other information suggesting spills or leaks of contaminants at the site, groundwater contamination does not appear to be a significant concern at the East Molloy Road site.

4.2.2 Migration Potential of Contaminants

GE did not provide any information regarding contamination at the Hiawatha Boulevard site. Therefore migration potential of contaminants, if any, from the Hiawatha Boulevard site is unknown.

As noted in Section 3.5, discharge of wastewater to the Onondaga County sewer system is a potentially significant pathway for contaminant migration from the East Molloy Road site. The primary contaminants of concern associated with the wastewater discharged from the site are PCBs. In addition, elevated pH levels (in excess of 9.5 standard units) were reported for wastewater discharged to the Onondaga County sewer system. Several other metals (*e.g.*, copper and zinc) were identified by GE as having the potential for exceeding the industrial wastewater discharge limits, although there was no indication that these metals or other chemical contaminants ever exceeded the allowable limits (GE, Mailing No. 3, p. 002029).

PCBs are persistent in the environment due to their high stability and relative inertness. They have a very low vapor pressure and, as a result, do not significantly volatilize. In addition, PCBs tend to strongly sorb to suspended matter and sediment. In aquatic systems, low amounts of PCBs are found in the water column due to their low solubility; most of the total PCBs tend to accumulate in sediments. Due to the relatively low levels of PCBs (less than 2 ppb) found in the wastewater discharged to the Onondaga County sewer system and the likelihood that most of the PCBs which were discharged had already been removed from the wastewater (*i.e.*, by settling [clarification] and adsorption on treatment plant sludge, and subsequent land disposal), the East Molloy Road site was probably a negligible source of PCBs to the Onondaga Lake system.

The high pH of the East Molloy Road facility wastewater, in excess of 9.5 standard units, was reportedly related to the detergents/cleaners used in the site operations (GE, Mailing No. 1, pp. 000335 - 000368). Since the assumed effluent flow rate from the East Molloy Road facility (1,000 gallons per day) is an extremely small fraction (0.002% or less) of the total design flow of the METRO Wastewater Treatment Plant (50 million gallons per day [MGD] through the 1970s; upgraded to 80 MGD in the early 1980s), it is unlikely that this site had any significant impact on the pH of either the influent to or effluent from the METRO Wastewater Treatment Plant.

5.0 POTENTIAL FOR ADVERSE IMPACTS TO LAKE SYSTEM DUE TO A RELEASE OR THREAT OF A RELEASE

As noted previously, GE did not provide any information regarding contamination at the Hiawatha Boulevard site. Therefore, the potential impact of the migration of contaminants (if any) from this site to the Onondaga Lake system is unknown. The potential impacts of contaminants associated with the East Molloy Road site on the Onondaga Lake system are discussed below.

5.1 Hazardous Substance Characteristics

As discussed in Sections 4.1 and 4.2.2, the primary contaminants of concern at the East Molloy Road site, based on documented releases from the site, are PCBs and alkalinity (high effluent pH values). Cessation of operations at the site has eliminated the potential for future impact of these site contaminants on the Onondaga Lake system. The alkalinity from the East Molloy Road site was likely diluted and possibly neutralized by other wastes in the Onondaga County sewer system. Therefore, the impact of high pH in the wastewater discharged from the East Molloy Road facility on the Onondaga Lake system is not expected to have been significant.

The potential for adverse impacts to the Onondaga Lake system as a result of historical transport of PCBs through the Onondaga County sewer system appears to be limited. Factors which govern the extent of this potential impact include the quantity of contaminant released, contaminant mobility, toxicity, and persistence as well as the tendency for the contaminant to bioaccumulate. It is likely that the PCBs in the wastewater discharged from the East Molloy Road facility were adsorbed onto solids. Suspended solids removal at the METRO Wastewater Treatment Plant averaged over 93% in the late 1980s, and was over 50% even during periods of significant treatment plant overloading in the 1970s (UFI, 1994). Therefore,

most of the PCBs discharged from the facility are likely to have ended up in the sludge from the METRO Wastewater Treatment Plant where they may gradually biodegrade or remain bound to sludge solids in landfills.

Mobility

PCBs generally have limited mobility in the environment since PCBs have a low vapor pressure and low water solubility. Based on these properties, PCB transport from the East Molloy Road site to Onondaga Lake is expected to be limited to the transport of PCB-bearing sediments or sludge which may still reside in the Onondaga County sewer system. As discussed in Section 5.2, a reasonable worst-case discharge of PCBs into the Onondaga County sewer system is estimated to be less than 3 grams per year. It is likely that most of the PCBs discharged to the sewer system traveled through the sewer system and were removed at the sewage treatment plant *(e.g.*, by settling [clarification] and adsorption onto the activated sludge beds) prior to discharge of the treated effluent to the Onondaga Lake system.

Toxicity

PCBs have been shown to cause many toxicological responses including carcinogenic, reproductive, teratogenic, neurologic/developmental, systemic and immunological effects. PCBs are classified B2, probable human carcinogens, based on hepatocellular carcinomas in rodent studies and inadequate yet suggestive evidence of excess risk of liver cancer in humans by ingestion and inhalation or dermal contact (USEPA, 1995). Studies have demonstrated that endpoints as a result of exposure to PCBs have shifted with time, differ among species, and are dependent on dose and exposure duration.

Persistence

PCBs are persistent in the environment due to their high stability and relative inertness. In aquatic systems, low amounts of PCBs are found dissolved in the water column due to their low solubility and preferential partitioning to suspended matter and sediment. In these systems, PCB transport and persistence is generally governed by the particle transport processes. PCBs have been shown to degrade to a limited extent via dechlorination.

As noted above, a substantial portion (50% to over 90%) of the PCBs discharged from the East Molloy Road site may have ended up in the METRO Wastewater Treatment Plant sludge. (PCBs discharged between 1976 and 1980 may also have ended up in the Ley Creek treatment plant sludge.) No information is available on the likely fate of PCBs in the treatment plant sludge.

Bioaccumulation

PCBs are very lipophilic and thus tend to bioaccumulate/bioconcentrate within living organisms. Significant levels of PCBs may often be detected in tissue of biota living in contaminated areas because organisms contain lipids, *e.g.*, fat-molecules such as glycerides and cholesterol. The more PCBs which are absorbed and remain in the organism, the greater the potential for toxic responses.

5.2 Quantity of Substance

The total quantity of PCBs discharged via the sewer system from the East Molloy Road facility is dependent upon three factors: the PCB concentration in the effluent; the flow rate of the effluent; and the duration of the effluent discharge. As noted in Section 4.1, discharges of PCBs from the East Molloy Road facility to the Onondaga County sewer system were

generally less than 2 ppb. In the Industrial Wastewater Discharge Permit Application submitted by GE to the OCDDS for the East Molloy Road facility, GE reported the facility's average effluent flow as 1,000 gallons per day for a 5-day week; the discharge was also estimated as 30,000 gallons per month (GE, Mailing No. 1, pp. 000335 - 000368). Using the higher discharge estimate, total discharge of PCBs from the East Molloy Road site to the Onondaga County sewer system is estimated to be less than 3 grams per year. Assuming 18 years of operation at the East Molloy Road location (1976 to 1993, inclusive), the total mass of PCBs discharged in the effluent is probably less than 50 grams. Insufficient information is available to warrant making an estimate of the amount of PCBs discharged from the Hiawatha Road operation.

It should be noted that the estimate of PCB discharge from the East Molloy Road location is based entirely on relatively recent data (late 1992 and 1993). It is likely that PCB concentrations (and total PCB discharges) were higher prior to the enactment of TSCA regulations (1978) and the corresponding phase-out in the use of PCBs in the United States.

5.3 Levels of Contaminants

PCBs were measured in wastewater discharged from the East Molloy Road facility at concentrations as high as 2 ppb, although measured concentrations were typically lower (not detected to less than 1 ppb). Higher concentrations were detected in some intermediate process stream samples (e.g., 120 ppm in the oil/water separator sludge; and 63 ppm in the underground storage tank sludge; GE, Mailing No. 3, pp. 002111, 002312 - 002320).

As noted in Section 5.2, there is no historical (pre-1992) data on PCB concentrations in wastewater discharged from the East Molloy Road facility; concentrations may have been higher prior to the enactment of TSCA regulations. Concentrations may also have been higher during the phase-out of PCB-containing equipment in the succeeding years. There is some

evidence indicating the presence of PCBs at the site (in drummed wastes and in the oil/water separator) dating back to 1983, the first year for which any analytical data was provided.

Alkalinity (pH) exceeded the maximum discharge limit established by the OCDDS (9.5 standard units) in a number of the samples reported. While a maximum pH of 11.62 standard units was reported (GE, Mailing No. 3, p. 002110), pH values were more typically in the range of 8.3 to 10.7 standard units.

5.4 Impacts on Special Status Areas

The East Molloy Road site is not situated in an area where direct impact to protected habitats or streams is likely to have occurred. Ley Creek is classified as a Class C (formerly Class D) water body. Ley Creek is not considered a "protected stream" in New York State. The nearest State Freshwater Wetland is approximately two-thirds of a mile southwest of the site and west of Ley Creek.

6.0 SUMMARY OF CONCERNS

As noted previously, GE did not provide any information regarding contamination at the Hiawatha Boulevard site and, therefore, the potential impact of the migration of contaminants (if any) from this site to the Onondaga Lake system is unknown.

Based on this review of the East Molloy Road site, it appears unlikely that this facility has been a significant historical source of PCBs to the Onondaga Lake system. However, this conclusion is been based solely on the limited sampling results collected by GE for compliance with OCDDS discharge requirements; most of this data is recent (late 1992 and 1993). No pre-1983 analytical data was provided by GE and, therefore, no conclusive statements can be made regarding the historical transport of contaminants from the site to the Onondaga Lake system. In order to better assess the potential impact of the East Molloy Road site on the Onondaga Lake system, TAMS recommends limited sampling along the north branch of Ley Creek.

REFERENCES

General Electric Company. (Mailing No. 1) Response to Request for Information. August 1994.

General Electric Company. (Mailing No. 2) Supplementary Response to Request for Information. January 1995.

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Rickard, L.V. and D.W. Fischer. 1970. Geologic Map of New York, Finger Lakes Sheet (1:250,000). New York State Museum and Science Service Map and Chart Series Number 15.

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United States Environmental Protection Agency (USEPA). 1995. Integrated Risk Information System (IRIS). Environmental Criteria and Assessment Office. Cincinnati, Ohio.

FIGURE

Site Location: General Electric Co. Syracuse Apparatus Service Centers

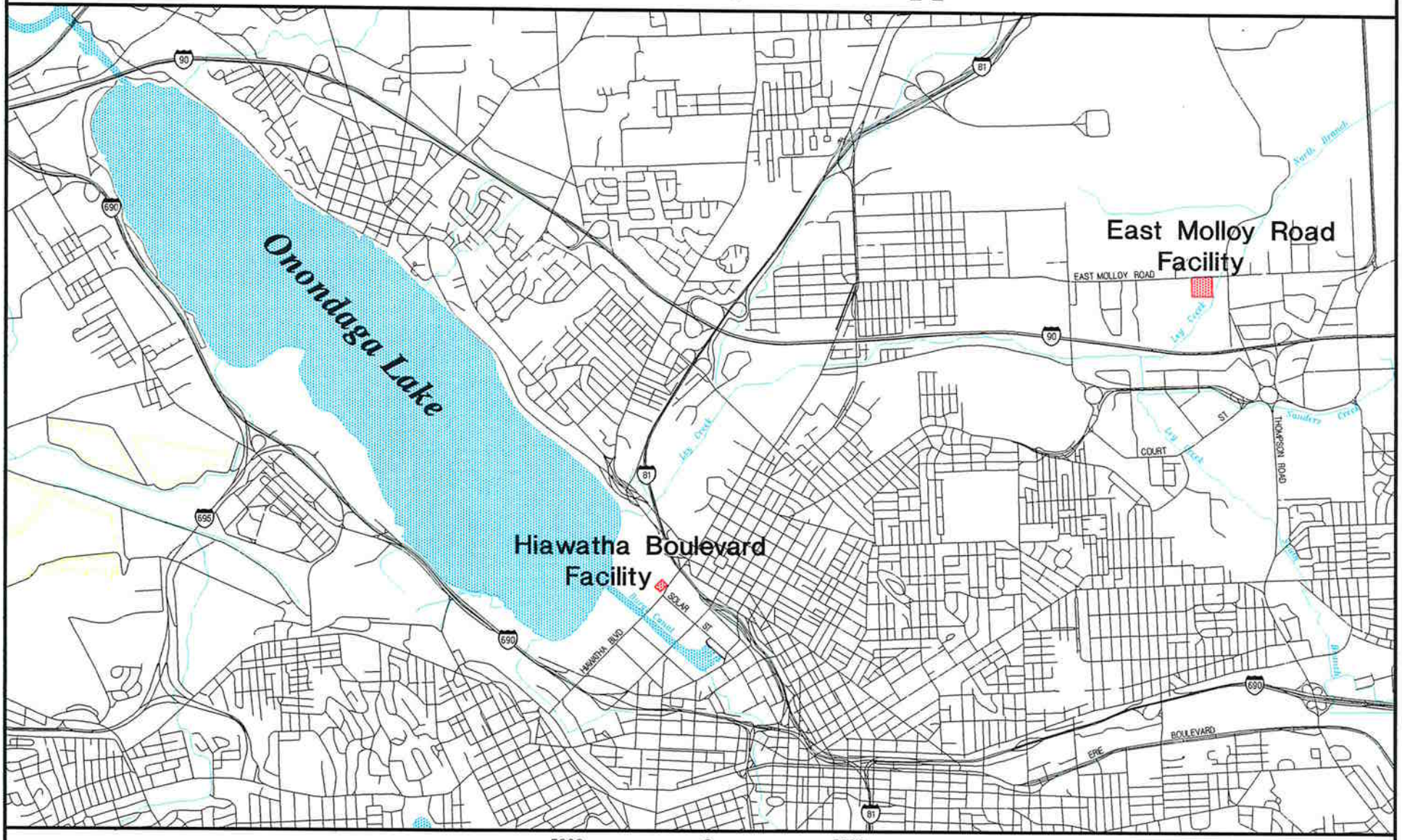

Figure 1